Spock and the Selection Principle

The Enterprise had been motionless for eleven hours.

Not damaged.

Not disabled.

Simply motionless.

Ahead of the ship, the stars appeared normal. Behind it, they appeared normal. Every instrument reported normal space-time curvature, normal vacuum energy, normal quantum fluctuations.

Yet the ship could not move.

"Impulse engines?"

"Nominal, Captain."

"Warp?"

"Nominal."

Kirk looked at Spock.

"And the ship still doesn't move."

Spock stood at the science console, staring at a display no one else understood.

"Captain, I believe we have misunderstood the nature of the problem."

Kirk sighed. "That's usually when things become interesting."

Spock enlarged the display.

"It appears that physical evolution can be approximated as a sequence of transformations."

McCoy looked over his shoulder.

"Approximated?"

"Locally, many appear remarkably simple. Almost linear."

Kirk frowned. "But the universe isn't linear."

"Precisely."

Spock touched the display.

"The nonlinearity may not reside primarily within the transformations. It may reside in the selection of which transformation occurs."

There was silence.

Uhura looked at him.

"You mean reality has a choice?"

"Not precisely. Reality has states. The states determine which lawful transformation follows."

Spock entered another equation.

$$x_{t+1} = L_{c(x_t)} x_t.$$

"Each L is individually quite ordinary. The extraordinary behaviour emerges from the sequence."

Kirk smiled.

"So if we could choose c..."

Spock stopped.

"Captain."

"What?"

"I believe we can."

Kirk turned.

"You mean in the simulation?"

"No, Captain."

Spock pointed toward the viewscreen.

"Here."

He activated a small device on the science console. It produced no visible effect.

The stars moved.

Not the ship.

The stars.

A distant sun that had been three light-years away now appeared directly ahead of the Enterprise.

McCoy stared through the viewscreen.

"Spock..."

"I selected a different permissible transformation."

Kirk walked toward the science station.

"Do it again."

Spock touched the control.

The star moved.

Then another.

The Enterprise appeared above a blue planet.

Then beside a moon.

Then inside a vast nebula.

Each time, no engines fired. No wormhole opened. No conventional space-time distortion was detected.

Reality itself seemed to be taking a different route through its allowed state space.

Kirk's expression changed.

"How much control do we have?"

Spock looked at the instruments.

"Nearly complete control of the selection variable."

"Nearly?"

"There are constraints."

"What kind?"

Spock considered this.

"The transformations themselves cannot be changed. We can only select among them."

Kirk smiled.

"That's enough."

Spock did not smile.

"No, Captain. It is considerably more than enough."

He selected another context.

A small object appeared on the science table.

Then a second version of it.

Then ten.

Then none.

Then the original object again.

McCoy jumped backward.

"Spock!"

"I am controlling the physical context selector."

McCoy pointed at the table.

"You're making copies of matter!"

"Apparently."

Kirk looked at Spock.

"Can you make anything happen?"

Spock returned his attention to the controls.

"Not anything."

He selected another context.

The coffee in Kirk's cup became hot.

Kirk looked at it.

Spock added:

"But a surprisingly large number of things."

Kirk tasted the coffee.

"Perfect temperature."

Spock raised an eyebrow.

"I did not calculate the temperature."

"You didn't?"

"No. I selected the context in which the desired state was the natural consequence of the transformation."

McCoy stared at him.

"You're telling me you didn't manipulate the coffee?"

"Correct."

"You manipulated which physical operation reality performed on the coffee."

"That is a more accurate description."

Kirk slowly put down his cup.

"Spock, can we move the Enterprise?"

Spock considered the question.

He entered a context.

The engines remained off.

The ship moved.

No acceleration was recorded.

No force was detected.

The Enterprise simply appeared several thousand kilometres away.

Kirk looked around the bridge.

"That was easy."

Spock nodded.

"Yes."

Kirk smiled.

"Then we can go anywhere."

"Probably."

"Make anything?"

Spock hesitated.

"Almost."

Kirk waited.

Spock finally said:

"The universe permits an enormous number of transformations. We have spent our entire history assuming that the important problem was discovering the correct transformation."

He looked at the control.

"It appears we should have been asking how to select it."

McCoy folded his arms.

"And now you can?"

Spock gave the smallest possible Vulcan smile.

"Yes, Doctor."

He pressed the control.

The bridge disappeared.

For approximately three seconds, everyone found themselves standing on a beach under a violet sky.

Then the bridge returned.

Kirk stared at Spock.

Spock looked mildly embarrassed.

"I selected the wrong context."

McCoy laughed.

Kirk pointed at him.

"Do that again."

Spock considered it.

"No, Captain."

"Why not?"

"Because I have just realized something."

He looked at the equations.

"If context selection is sufficiently powerful, then the distinction between *changing reality* and *choosing which reality transformation occurs* becomes rather difficult to maintain."

Kirk looked at the stars.

"Spock?"

"Yes, Captain?"

"How powerful is this thing?"

Spock examined the instruments.

Then he looked at Kirk.

"I believe, Captain, that we have discovered a mechanism for nearly bending reality at will."

Kirk grinned.

"Nearly?"

Spock nodded.

"The universe retains veto power."

McCoy smiled.

"Good."

Spock raised an eyebrow.

"Why?"

McCoy looked at Kirk.

"Because otherwise you two would have destroyed it before lunch."

Spock considered this.

"An entirely reasonable precaution."

He quietly removed the context control from Kirk's reach.